



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Shoji HARA et al.**

Art Unit: **1762**

Application Number: **09/782,169**

Examiner: **Brian K. Talbot**

Filed: **February 14, 2001**

Confirmation No.: **2107**

For: **LAMINATE COMPRISING POLYIMIDE AND CONDUCTOR LAYER, MULTI-LAYER WIRING BOARD WITH THE USE OF THE SAME AND PROCESS FOR PRODUCING THE SAME**

Attorney Docket Number: **010164**

Customer Number: **38834**

REPLY BRIEF

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

September 5, 2008

Sir:

This paper is filed in response to the Examiner's Answer dated July 8, 2008. A request for Oral Hearing accompanies this Reply Brief.

REMARKS

The Examiner's Response to Argument begins on page 6 of the Examiner's Answer. Although appellants had argued the merits of the claims individually, the Examiner does not address the individual arguments, but instead provides a general response.

The Examiner contends that appellants had argued "that the prior art teaches applying a metal foil on a polyimide film and that this does not constitute a laminate." This generalized statement of the Examiner is not correct. It seems that the Examiner may be relying on a statement on page 14 of the Appeal Brief which addresses the teachings of JP'966. At lines 4-6 of page 14 of the Appeal Brief, appellants had pointed out the teachings of JP'966 cannot read on the step of claim 1 because there is yet to be a laminate as defined by the present claims (the laminate having a conductor layer directly adhering with at least one surface of a thermoplastic polyimide film). In JP'966, a solution of a heat-resistant polymer which is a polyimide precursor solution or a polyester-imide solution is cast-coated onto a metal foil, which solution is then solidified via drying and thereafter ripened. This teaching is in contrast to claim 1 which requires forming at least one conductor layer directly adhering with at least one surface of a thermoplastic polyimide film to obtain a laminate.

The Examiner seems to have changed his position in the Examiner's Answer from that taken in the final Office Action. On page 6 of the Examiner's Answer, the Examiner states "[a]s detailed in a previous Office Action, the Examiner has taken the position that upon heat pressing the metal foil and the polyimide film at one point, a laminate would be formed and the heat

pressing would continue and constitute the claimed heating step.” This was a position not taken in any of the most recent Office Actions, but a position taken before the claims were amended. Appellants note that this position was taken in the Office Action dated May 20, 2005. The Examiner’s current position, however, directly contradicts the Examiner’s admission in the Final Action as well as his admission on page 3 of the Examiner’s Answer stating that “Chen et al. (5,156,710) or Shiotani et al. (5,741,598) fail to teach heating the said laminate.”

The Examiner now takes the position that no invention is involved in the broad concept of performing simultaneously operations which have previously been performed in sequence in the sentence bridging pages 6 and 7 of the Examiner’s Answer. The claimed invention is not simply a concept of performing simultaneously operations which have previously been performed in sequence, or vice versa. As argued in the Appeal Brief, the claimed processes are characterized in that at least one conductor layer is directly formed on a surface of a thermoplastic polyimide film to obtain a laminate. That is, a conductor layer is directly formed (for example, by plating, sputtering, evaporation, CVD or ion plating), on a thermoplastic polyimide film. The claimed processes are different from methods which employ a previously formed conductor layer (a foil) which is laminated to polyimide.

In the first full sentence on page 7 of the Examiner’s Answer, the Examiner alleges that appellants had argued that the prior art teaches forming a metal film on the polyimide film but that it does not constitute a laminate. No such argument was made. The Examiner seems to be making arguments based upon the individual teachings of the references, and not on what the combination of the teachings of the references would suggest to one of ordinary skill in the art.

For example, on page 7, lines 5-9 of the Examiner's Answer, the Examiner states that the prior art teaches forming the metal layer atop the polyimide film by a variety of dry plating processes. The Examiner apparently is referring to the rejection of claims 1, 3-11, 13 and 17-20 over JP'640 or JP'106 in combination with JP'966. The Appeal Brief, however, clearly discusses the teachings of JP'640, JP'106 and JP'966 beginning on page 20 thereof. The Examiner seems to ignore what the teachings of the references in combination would suggest. For example, the Appeal Brief acknowledged the teachings of JP'640 which disclosed use of a copper foil as well as a chemical plating method. However, in the examples which employ a copper foil, heat and pressure are applied. On the other hand, in Example 9 which provides a conductor layer which is directly formed by a chemical plating method, no subsequent heating step is performed. This is clearly evident from Table 1 which does not report a press temperature for Example 9, as compared with the other examples which all report a press temperature when laminating a foil onto a thermoplastic polyimide. This should strongly suggest that one of ordinary skill in the art would never imagine or recognize that adhesion could be improved by a subsequent heating step performed after a conductor layer is formed on a thermoplastic polyimide. Accordingly, the teachings of JP'966 would not have motivated one of ordinary skill in the art to modify the teachings of the prior art as asserted by the Examiner.

With respect to appellant's arguments that JP'966 does not suggest or teach enhancing adhesion strength, the Examiner acknowledges that JP'966 teaches a decrease in adhesion. The Examiner takes the position that the teaching of JP'966 that "reduction of adhesion can be prevented by performing the ripening in an inert atmosphere could meet the language of the

present claims if adhesion is enhanced by a microscopically small amount”. The Examiner attempts to remedy this deficiency by arguing that although an increase of adhesive strength is not taught by JP’966, “the fact that the heating step was found to negate the decrease in adhesion would provide support for no adhesion loss and/or a small increase.” This is not so. The fact remains that JP’966 does not teach or suggest what is required by the claims, namely heating said laminate so that the adhesion strength between the thermoplastic polyimide layer and the conductor layer is enhanced. As such, the combination of references fails to teach all the elements required by the claims.

Lastly, the Examiner argues that the claims are not commensurate in scope with the argument that JP’966 teaches forming of a polyimide layer on a metal layer and not a metal layer on a polyimide layer. The Examiner incorrectly characterizes the claims as merely reciting “forming a conductor layer directly adhering to one surface of a polyimide film.” The claims are limited, however, to “forming at least one conductor layer directly adhering with at least one surface of a thermoplastic polyimide film to obtain a laminate.” In contrast, JP’966 is directed to forming a plastic layer on a metal foil.

For at least the above reasons detailed and the reasons set forth in the Appeal Brief, the Honorable Board is respectfully requested to reverse the rejection of the Examiner.

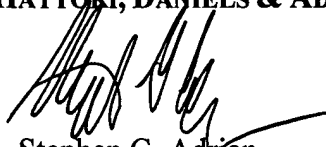
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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Stephen G. Adrian', is written over the printed name.

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